

REMARKS

Claims 1-24 are pending. Claims 1-24 are rejected. It is to be appreciated that while reference may be made back to certain parts of the application in this Reply (e.g., page numbers, line numbers, Figs., etc.), that such referencing is not to be interpreted in a limiting manner (e.g., to limit the scope of the claims and/or features therein to the particular portion(s) referenced), but is instead merely done for purposes of explanation, illustration and/or ease of understanding. Reconsideration of the application is respectfully requested based on the following remarks.

I. REJECTION OF CLAIMS 1-23 UNDER 35 U.S.C. §103(a)

Claims 1-23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Boos (US 7,103,343) in view of Auvray (US 5,953,641) and Claxton et al. (US 6,804,308). Withdrawal of the rejection is respectfully requested for at least the following reasons.

Independent claim 1 provides that a first frequency divider is connected between a voltage controlled oscillator and a mixer unit, and that a second frequency divider is connected between the voltage controlled oscillator and an analog/digital converter unit downstream from the mixer unit.

It is respectfully submitted that the suggested combination does not teach these features. For example, Boos teaches a multiplier (MP1) and a second analog/digital converter (AD') that are coupled between VCO and analog/digital converter (AD) (Fig. 2), as opposed to a second frequency divider connected between the voltage controlled oscillator and the analog/digital converter as provided in independent claim 1. Additionally, multiplier (MP1) and second analog/digital converter (AD') are also coupled between reference generator (RG) and analog/digital converter (AD) in Boos (Fig. 2).

Likewise, while the frequency changer (DIV) in Auvray is connected to the tunable source (SYN) and coupled to one or more mixers (MEI, MEQ, MRI, MRQ) (e.g., through at least one phase-shifter DPH1, DPH2, DPH3, DPH4 via at least one switching means CEI, CEQ, CRI, CRQ) (Fig. 1), Auvray is silent as to a second

frequency divider and an analog/digital converter (and thus any (inter)connection there-between) as provided in independent claim 1.

Similarly, Claxton et al. fail to teach a first frequency divider connected between a voltage controlled oscillator and a mixer unit as provided in independent claim 1 since a synthesizer 42 or 66 and an amplifier 44 or 68 (rather than a frequency divider) are located between the reference source 40 and the mixer 28 or 64 in Claxton et al. (Fig. 2).

Moreover, it is respectfully submitted that one of ordinary skill in the art would not have been motivated to modify Boos in view of Claxton et al. or Auvray as this would frustrate a primary purpose of Boos. For example, Boos is concerned with providing a space (and energy) saving circuit arrangement for a mobile radio (e.g., cellular telephone) (Col. 2, lines 36-40; Abstract). Claxton et al., on the other hand, provides a more complex double-down arrangement that requires more hardware, and is thus not area efficient, to allow a less complex analog to digital converter (ADC) to be used (Col. 5, line 51 to Col. 6, line 54; Abstract; Fig. 2). Accordingly, one of ordinary skill in the art would not be motivated to modify the space saving circuit arrangement of Boos in view of the area-inefficient arrangement of Claxton et al. as this would frustrate a primary purpose of Boos.

In addition, while a less complex (single-down) arrangement (e.g., that requires a more complex ADC) is illustrated in Fig. 1 of Claxton et al., this arrangement does not include a (second) frequency divider connected between the voltage controlled oscillator and the analog/digital converter as provided in independent claim 1. Instead, the arrangement illustrated in Fig. 1 of Claxton et al. provides a multiplier 48, rather than a divider, coupled between the reference source 40 and the ADC 20 (e.g., through synthesizer 42 and amplifier 46). Accordingly, without admitting that it is obvious (or even possible), any modification of Boos in view of the teaching with regard to Fig. 1 of Claxton et al. would still not anticipate independent claim 1 as it would lack a frequency divider between a voltage controlled oscillator and an analog/digital converter.

As with Claxton et al., one of ordinary skill in the art would not be motivated to modify the circuit arrangement of Boos in view of Auvray because Auvray, like Claxton et al., provides an area inefficient arrangement that would frustrate the space saving purpose of Boos. For example, Auvray provides a multimode radio communication terminal that has two mixers (MEI, MEQ) in a transmit path (CE), as well as two mixers (MRI, MRQ) in a receive path (CR). This arrangement provides additional functionality, but in so doing, sacrifices compactness.

It is thus respectfully submitted that independent claim 1 is allowable over the references cited for at least the foregoing reasons. Claims 2-23 depend from independent claim 1 and thus are also believed to be allowable over the references cited. Withdrawal of this rejection is therefore respectfully requested.

II. REJECTION OF CLAIM 24 UNDER 35 U.S.C. §103(a)

Claim 24 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Auvray (US5,953,641) in view of Claxton et al. (US 6,804,308). Withdrawal of the rejection is respectfully requested for at least the following reasons.

Independent claim 24 references first and second frequency dividers coupled between a voltage controlled oscillator and a mixer unit and an analog to digital converter unit, respectively. It is respectfully submitted that the suggested combination does not teach these features. For example, Auvray pertains to a single-down arrangement, where a signal in the transmit path (CE) experiences a single conversion (e.g., through (parallel) mixers MEI, MEQ) and a signal in the receive path (CR) likewise experiences a single conversion (e.g., through (parallel) mixers MRI, MRQ). As such, since Fig. 2 of Claxton et al. pertains to a double-down arrangement, whereas Fig. 1 of Claxton et al. pertains to a single-down arrangement, it is respectfully submitted that one of ordinary skill in the art would, at best, look to modify Auvray in view of the teaching with regard to Fig. 1 of Claxton et al., rather than that of Fig. 2. However, without admitting that it is obvious (or even possible), modifying Auvray in view of the teaching of Fig. 1 of Claxton et al. would not anticipate claim 24 because Fig. 1 of

Claxton et al. provides a multiplier 48, rather than a divider, coupled between the reference source 40 and the ADC 20 (e.g., through synthesizer 42 and amplifier 46). Accordingly, since any resulting modification would lack a frequency divider between a voltage controlled oscillator and an analog/digital converter, independent claim 24 is believed to be allowable over the references cited, and withdrawal of this rejection is therefore respectfully requested.

III. CONCLUSION

For at least the above reasons, the claims currently under consideration are believed to be in condition for allowance.

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should any fees be due as a result of the filing of this response, the Commissioner is hereby authorized to charge the Deposit Account Number 50-1733, EHFP139US.

Respectfully submitted,
ESCHWEILER & ASSOCIATES, LLC

By /Thomas G. Eschweiler/
Thomas G. Eschweiler
Reg. No. 36,981

National City Bank Building
629 Euclid Avenue, Suite 1000
Cleveland, Ohio 44114
(216) 502-0600